

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

In the Claims

Please amend claim 15 as follows:

15 (amended). A program for storage in a computer readable medium for enabling a disk array storage facility to handle overlapped input-output requests to a single logical volume wherein each input-output request contains a plurality of predetermined parameters including an address range and the storage facility includes an overlap polling queue, said program comprising:

- A) a configuration module that establishes a table for the logical volume with entry input-output requests and corresponding parameters including the address range,
- B) a testing module that tests the parameters for each new input-output request with respect to the parameters for input-output request entries in the table including a comparison of the address range in the new input-output request with the address range of each input-output request in the table to determine whether to place the new input-output request on the overlap polling queue, and

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

C) a polling module that responds to said testing module by performing one of a plurality of control functions to include enabling the processing of the input-output request by the storage facility by polling the entries on the overlap polling queue.

16 (previously presented). A program as recited in claim 15 wherein said polling module enables the new input-output request to be processed in response to the polling of entries on the overlap polling queue.

17 (previously presented). A program as recited in claim 15 wherein each input-output request includes other parameters and wherein said testing module compares each of the other parameters of the new input-output request with the corresponding parameters of the input-output requests in the table.

18 (previously presented). A program as recited in claim 15 wherein one parameter defines an input-output request that requires the entire logical volume to be dedicated to that input-output request, said testing module including:

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

- i) a process that terminates the program in response to a first value of the one parameter in an existing input-output request in the table, and
- ii) a process that places the input-output request on the overlap polling queue in response to a second value of the one parameter in the new input-output request.

19 (previously presented). A program as recited in claim 15 wherein an other parameter has a first value that defines an input-output request to be processed without interruption, said testing module including:

- i) a process that places the new input-output request on the overlap polling queue if the other parameter for either the new or existing input-output request has the first value, and
- ii) a process that enables a comparison of the addresses in the input-output requests if neither of the new and existing input-output requests has the first value of the other parameter.

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

20 (previously presented). A program as recited in claim 15 wherein said configuration module establishes the table by a process that defines the table with a predetermined capacity and a process that responds to the receipt of a new input-output request by enabling said testing module after determining the availability of an entry location in the table.

21 (previously presented). A program as recited in claim 20 wherein the storage device includes an available entry polling queue, said program additionally comprising an available entry polling process that interacts with the entries in the available entry polling queue to identify an available entry for the new input-output request.

22 (previously presented). A program as recited in claim 21 wherein said testing module includes a process that determines the availability of an entry in the table by an iterative sequence that tests the availability of an entry in the table over a predetermined interval prior to placing information about the new input-output request on the available entry polling queue.

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

23 (previously presented). A program as recited in claim 20 wherein each input-output request includes other parameters and wherein said testing module includes a process that compares each of the other parameters of the new input-output request with the corresponding parameters of the input-output requests in the table.

24 (previously presented). A program as recited in claim 23 wherein one parameter defines an input-output request that requires the entire logical volume to be dedicated to that input-output request, said testing module including:

- i) a process that terminates the program in response to a first value of the one parameter in an existing input-output request in the table, and
- ii) a process that places the input-output request on the overlap polling queue in response to a second value of the one parameter in the new input-output request.

25 (previously presented). A program as recited in claim 24 wherein an other parameter has a first value that defines

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

an input-output request to be processed without
interruption, said testing module including:

- i) a process that places the new input-output request on the overlap polling queue if the other parameter for either the new or existing input-output request has the first value, and
- ii) a process that enables the comparison of the addresses in the input-output requests if neither of the new and existing input-output requests has the first value of the other parameter.

26 (previously presented). A program as recited in claim 23 wherein an other parameter has a first value that defines an input-output request to be processed without interruption, said testing module including:

- i) a process that places the new input-output request on the overlap polling queue if the other parameter for either the new or existing input-output request has the first value, and
- ii) a process that enables the comparison of the addresses in the input-output requests if neither of the new and existing input-output

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

requests has the first value of the other
parameter.

27 (previously presented). A disk array storage facility
enabled to handle overlapped input-output requests to a
single logical volume wherein each input-output request
contains a plurality of predetermined parameters including
an address range and said storage facility includes an
overlap polling queue, said disk array storage facility
comprising:

- A) configuration means for establishing a table for the
logical volume with entry input-output requests and
corresponding parameters including the address range,
- B) testing means for testing the parameters for each new
input-output request with respect to the parameters
for input-output request entries in the table
including the means for comparing of the address
range in the new input-output request with the
address range of each input-output request in the
table to determine whether to place the new input-
output request on the overlap polling queue, and

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

C) polling means for responding to said testing by performing one of a plurality of control functions which control functions include enabling the processing of the input-output request by the storage facility including polling the entries on the overlap polling queue.

28 (previously presented). A disk array storage facility as recited in claim 27 wherein said polling means includes means for polling entries on the overlap polling queue to enable the new input-output request to be processed.

29 (previously presented). A disk array storage facility as recited in claim 27 wherein each input-output request includes other parameters and wherein said testing means includes means for comparing each of the other parameters of the new input-output request with the corresponding parameters of the input-output requests in the table.

30 (previously presented). A disk array storage facility as recited in claim 27 wherein one parameter defines an input-output request that requires the entire logical

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

volume to be dedicated to that input-output request, said testing means including:

- i) means for terminating operations in response to a first value of the one parameter in an existing input-output request in the table, and
- ii) means for placing the input-output request on the overlap polling queue in response to a second value of the one parameter in the new input-output request.

31 (previously presented). A disk array storage facility as recited in claim 30 wherein an other parameter has a first value that defines an input-output request to be processed without interruption, said testing means including:

- i) means for placing the new input-output request on said overlap polling queue if the other parameter for either the new or existing input-output request has the first value, and
- ii) means for enabling the comparison of the addresses in the input-output requests if neither of the new and existing input-output requests has the first value of the other parameter.

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

32 (previously presented). A disk array storage facility as recited in claim 27 wherein said establishing means includes means for defining the table with a predetermined capacity and means for responding to the receipt of a new input-output request by enabling said testing means after determining the availability of an entry location in said table.

33 (previously presented). A disk array storage facility as recited in claim 32 wherein the storage device includes an available entry polling queue and available entry polling means for interacting with the entries in the available entry polling queue to identify an available entry for the new input-output request.

34 (previously presented). A disk array storage facility as recited in claim 33 wherein said testing means includes iterative processing means for iteratively testing the availability of an entry in the table over a predetermined interval prior to placing information about the new input-output request on said available entry polling queue.

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

35 (previously presented). A disk array storage facility as recited in claim 32 wherein each input-output request includes other parameters and wherein said testing means includes means for comparing each of the other parameters of the new input-output request with the corresponding parameters of the input-output requests in said table.

36 (previously presented). A disk array storage facility as recited in claim 35 wherein one parameter defines an input-output request that requires the entire logical volume to be dedicated to that input-output request, said testing means including means for terminating operations in response to a first value of the one parameter in an existing input-output request in the table and means for placing the input-output request on said overlap polling queue in response to a second value of the one parameter in the new input-output request.

37 (previously presented). A disk array storage facility as recited in claim 36 wherein an other parameter has a first value that defines an input-output request to be processed without interruption, said testing means including means for placing the new input-output request on the overlap

Applicant(s): NATAN VISHLITZKY, HANA MORESHET, MARTIN FARLEY,
IZHAR SHARON AND ELIZABETH C. PATAPOUTIAN
Serial No.: 10/692,120
Filed: October 23, 2003

polling queue if the other parameter for either the new or existing input-output request has the first value and means for enabling the comparison of the addresses in the input-output requests if neither of the new and existing input-output requests has the first value of the other parameter.

38 (previously presented). A disk array storage facility as recited in claim 35 wherein an other parameter has a first value that defines an input-output request to be processed without interruption, said testing means including means for placing the new input-output request on the overlap polling queue if the other parameter for either the new or existing input-output request has the first value and means for enabling the comparison of the addresses in the input-output requests if neither of the new and existing input-output requests has the first value of the other parameter.